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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/808,267 | 03/11/2004 | Jonathan Schuler | NC 84,655 | 4786 |

26384 7590 09/26/2006

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| EXAMINER |
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EDWARDS, PATRICK L

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| ART UNIT | PAPER NUMBER |
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2624

DATE MAILED: 09/26/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|--------------------------------|--------------------------------|--|
| Office Action Summary | Application No. 10/808,267 | Applicant(s) SCHULER ET AL. | |
| | Examiner Patrick L. Edwards | Art Unit 2624 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 July 2006.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2-5,7-10,12 and 13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 2,3,5,7-10,12 and 13 is/are allowed.
- 6) ☒ Claim(s) 4 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|--|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input checked="" type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. <u>09-20-2006</u> . |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>07-14-2006</u> . | 6) <input type="checkbox"/> Other: _____. |

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DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 07-14-2006 has been entered.

Response to Arguments

2. Applicant's arguments filed on 07-14-2006 have been fully considered. A response to these arguments is provided below.

Drawing Objections

Summary of Argument:

Applicant has submitted drawing sheets in response to the drawing objections from the final rejection.

Examiner's Response:

The previous objections are withdrawn.

35 USC 112, Second Paragraph Rejections

Summary of Argument:

Applicant has amended claims 4, 5, and 7 in response to the previous 112(2) rejections

Examiner's Response:

The previous rejections are hereby withdrawn.

Information Disclosure Statement

Summary of Argument:

The previous office action (the final rejection) requested that Applicants verify the classification level of the "O'Neal" document mentioned in the background section of the application and if possible, submit the document to the USPTO via an information disclosure statement. Applicants have requested that the responsible security office determine whether the document can be made publicly available via a submission to the USPTO. No response has been received to date. Accordingly, applicant's have requested a suspension of action in this application, in order to allow the national security review to be completed prior to the submission of the document.

Examiner's Response:

This action is a non-final rejection, which gives applicants 6 additional months to verify the classification level. The examiner imagines that this will be more than enough time for "the national security review to be completed."

Allowable Subject Matter

3. Claims 2, 3, 5, 7-10, 12, and 13 are allowed.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

5. Claim 4 is rejected under 35 U.S.C. 102(a) as being anticipated by Rumo et al. (“Superresolution in Images Using Optical Flow and Irregular Sampling”)

Regarding claim 4, Rumo discloses estimating motion associated with said video sequence of images (Rumo pg. 1: “integer pixel shift estimator.” The estimate of a shift between images is motion estimation.).

Rumo further discloses associating pixels of the sequence with the following quantities:

- pixel intensity; x-coordinate and y-coordinate location; x-coordinate and y-coordinate location estimate uncertainty (Rumo pg.2: The reference describes using a Taylor series for a subpixel shift estimator that estimates subpixel shift in both the x and y direction. Obviously, each of the pixels have an associated intensity and an x and y coordinate location. This knowledge is inherent in performing the shift estimate itself. The subpixel shift estimator further shows that the process of motion estimation (shift estimation) also includes associating x and y coordinate uncertainties (The x and y uncertainties are used by the Taylor series in the determination of a shift between two images. Thus, the x and y coordinate uncertainties are associated with each pixel in the process of performing this estimate.).).

Rumo further discloses assembling said video sequence of images to form a single composite image based on estimate positions of individual pixels (Rumo abstract: “from these shifted low resolution images ... a higher resolution aliasing-free image can be constructed”)

Rumo further discloses restoring a composite image (Rumo abstract: “the reconstructed image”).

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Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Patrick L. Edwards whose telephone number is (571) 272-7390. The examiner can normally be reached on 8:30am - 5:00pm M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh Mehta can be reached on (571) 272-7453. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Patrick L. Edwards

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